



Tropentag, October 6-8, 2009, Hamburg

“Biophysical and Socio-economic Frame Conditions
for the Sustainable Management
of Natural Resources”

Economic Efficiency of Shrimp Farms in Thailand under Good Agricultural Practice System

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Abstract

The main purpose of this study is to measure and investigate factors affecting economic inefficiency of shrimp farms in Thailand under Good Agricultural Practice System. In the first stage, to estimate efficiency scores, the data envelopment analysis (DEA) approach is applied to farm-level cross-sectional survey data of shrimp farms in two districts of two provinces in the Eastern Region of Thailand. In the second stage, in order to examine the effect of farm-specific socio-economic and management factors on farm efficiency, a regression model is estimated where the level of inefficiency from DEA is expressed as a function of these factors. Then, Tobit estimation is used in this study. Previous studies have investigated economic efficiency and its components at both the farm and aggregate levels in Thai agriculture. However, this study, to the best of our knowledge, has been the first application of DEA in order to measure and explain economic efficiency and its components of shrimp farms in Thailand. The empirical results suggest two important findings. First, the economic efficiency scores of some farms were considerably low. Second, there is confirmation that farm size, the considerable variability of concentrated feed used have influenced the economic inefficiency of shrimp farms while the differences in producers' age, education and experience, the number of farm visits per year and belonging to farmer groups do not have different impacts on economic efficiency in Thai shrimp production in different farms. The results indicate advantages in ready mixed shrimp feed used by producers and small farms in Thai shrimp production. Therefore, the development policies of the above areas should be used to increase the cost efficiencies of these inefficient farms in Thailand.

Keywords: Data development analysis, economic inefficiency, Good Agricultural Practice System, socio-economic and management factors, thai shrimp farms, Tobit regression